AMENDMENTS TO THE CLAIMS

1. (Previously Presented) Particle beam irradiation equipment comprising charged particle beam generation equipment and a charged particle beam irradiation nozzle for irradiating a charged particle beam extracted from said charged particle beam generation equipment to an irradiation target,

wherein said charged particle beam irradiation nozzle comprises:

a first scatterer device including a first scatterer through which said charged particle beam passes;

a second scatterer device including a plurality of second scatterers through which said charged particle beam passes after having passed said first scatterer, said second scatterer device causing one of said plurality of second scatterers to position in a passage region of said charged particle beam at one of plural different positions in the direction of travel of said charged particle beam; and

a collimator for shaping said charged particle beam,

said plurality of second scatterers of the second scatterer device each being configured to have higher scatter strength in the central side than in the radially outer peripheral side to provide a beam irradiation of a double scattering method in combination with said first scatterer of the first scatterer device,

said plurality of second scatterers including a second scatterer for smaller irradiation field size caused to position in said passage region at a first position in the direction of travel of said charged particle beam and used when said collimator is adapted for a relatively small first irradiation field and another second scatterer for larger irradiation field size caused to position in said passage region at a second position upstream of said first position in the direction of travel of said charged particle beam and used when said collimator is adapted for a larger second irradiation field than said first irradiation field, said second scatterer for smaller irradiation field size caused to position in the passage region at said first position having a thickness different from that of said another second scatterer for larger irradiation field caused to position in the

passage region at said second position so as to provide smaller scattering strength of said charged particle beam in a direction perpendicular to the direction of travel of said charged particle beam than said another second scatterer for larger irradiation field size.

2. (Currently amended) Particle beam irradiation equipment comprising charged particle beam generation equipment and a charged particle beam irradiation nozzle for irradiating a charged particle beam extracted from said charged particle beam generation equipment to an irradiation target,

wherein said charged particle beam irradiation nozzle comprises a first scatterer device including a first scatterer through which said charged particle beam passes, a second scatterer device including a plurality of second scatterers through which a Gaussian distributed charged particle beam passes, said plurality of second scatterers being ~~to be~~ positioned in a passage region of said charged particle beam after ~~having passed~~ said first scatterer, and a collimator for shaping said charged particle beam; and

said particle beam irradiation equipment includes a control system for controlling said second scatterer device such that one of said plurality of second scatterers is positioned in said passage region at one of plural different positions in the direction of travel of said charged particle beam,

said plurality of second scatterers of the second scatterer device each being configured to have higher scatter strength in the central side than in the radially outer peripheral side to provide a beam irradiation of a double scattering method in combination with said first scatterer of the first scatterer device,

said plurality of second scatterers including a second scatterer for smaller irradiation field size caused to position in said passage region at a first position in the direction of travel of said charged particle beam and used when said collimator is adapted for a relatively small first irradiation field and another second scatterer for larger irradiation field size caused to position in said passage region at a second position upstream of said first position in the direction of travel of said charged particle beam and used when said collimator is adapted for a larger second

irradiation field than said first irradiation field, said second scatterer for smaller irradiation field size caused to position in the passage region at said first position having a thickness different from that of said another second scatterer for larger irradiation field caused to position in the passage region at said second position so as to provide smaller scattering strength of said charged particle beam in a direction perpendicular to the direction of travel of said charged particle beam than said another second scatterer for larger irradiation field size.

3. (Previously Presented) Particle beam irradiation equipment according to Claim 2, wherein said control system places the one of said plurality of second scatterers at the one of the plural different positions selected based on treatment plan information.

4. (Previously Presented) Particle beam irradiation equipment according to Claim 3, wherein said treatment plan information is irradiation field information.

5. (Previously Presented) Particle beam irradiation equipment according to Claim 3, wherein said control system places, at the selected position, the one of said plurality of second scatterers selected based on another treatment plan information.

6. (Previously Presented) Particle beam irradiation equipment according to Claim 5, wherein said another treatment plan information is energy information of an ion beam.

7. (Previously Presented) Particle beam irradiation equipment according to Claim 26, further comprising a control system for controlling a selected one of said upstream second scatterer device and said downstream second scatterer device such that the second scatterer included in said selected second scatterer device is positioned in said passage.

8. (Previously Presented) Particle beam irradiation equipment according to Claim 7, wherein said control system selects the one of said second scatterers devices based on treatment

plan information.

9. (Previously Presented) Particle beam irradiation equipment according to Claim 7, wherein said upstream second scatterer device includes a first table for mounting said second scatterer thereon and positioning said second scatterer in said passage region, and said downstream second scatterer device includes a second table for mounting said another second scatterer thereon and positioning said another second scatterer in said passage region.

10. (Previously Presented) Particle beam irradiation equipment according to Claim 9, wherein said first table mounts said second scatterer in plural number thereon, said second table mounts said another second scatterer in plural number thereon, and said another second scatterer mounted in plural number on said second table provides smaller scattering strength of said charged particle beam in a direction perpendicular to the direction of travel of said charged particle beam than said second scatterer mounted in plural number on said first table.

11. (Previously Presented) Particle beam irradiation equipment according to Claim 9 or 10, wherein said charged particle beam irradiation nozzle further comprises a first table moving device for moving said first table in the direction perpendicular to the direction of travel of said charged particle beam, and a second table moving device for moving said second table in the direction perpendicular to the direction of travel of said charged particle beam; and

said control system controls the table moving device included in the selected second scatterer device, thereby controlling movement of the corresponding table such that the corresponding second scatterer is positioned said passage region.

12. (Currently amended) Particle beam irradiation equipment comprising charged particle beam generation equipment and a charged particle beam irradiation nozzle for irradiating a charged particle beam extracted from said charged particle beam generation equipment to an irradiation target,

wherein said charged particle beam irradiation nozzle comprises:

a first scatterer through which said charged particle beam passes;

a first table disposed downstream of said first scatterer in the direction of travel of said charged particle beam and mounting a second scatterer, wherein said first table is to be positioned in a passage region of said charged particle beam;

a second table disposed downstream of said first table in the direction of travel of said charged particle beam and mounting another second scatterer, wherein said second table is to be positioned in said passage region; and

a collimator for shaping said charged particle beam;

said second scatterer of each of the first and second tables being configured to have higher scatter strength in the central side than in the radially outer peripheral side to provide a beam irradiation of a double scattering method in combination with said first scatterer,

said second scatterer mounted on said first table being used as one for larger irradiation field size when said collimator is adapted for a larger second irradiation field than a first irradiation field, and said another second scatterer mounted on said second table being used as one for smaller irradiation field size when said collimator is adapted for said first irradiation field, said another second scatterer for smaller irradiation field size mounted on said second table having a thickness different from that of said second scatterer for larger irradiation field mounted on said first table so as to provide smaller scattering strength of said charged particle beam in a direction perpendicular to the direction of travel of said charged particle beam than said second scatterer for larger irradiation field size,

<u>and wherein said second scatterer device modulates a Gaussian distributed charged particle beam</u>.

13. (Previously Presented) Particle beam irradiation equipment according to Claim 12, wherein said first scatterer is movable within said charged particle beam irradiation nozzle in the direction of travel of said charged particle beam.

14. (Previously Presented) Particle beam irradiation equipment according to Claim 13, further comprising a first scatterer moving device for moving said first scatterer in the direction of travel of said charged particle beam, and a first scatterer control device for controlling said first scatterer moving device, thereby controlling an amount by which said first scatterer is to be moved.

15. (Previously Presented) Particle beam irradiation equipment according to Claim 12, wherein said first table and said second table are capable of placing respectively said second scatterer and said another second scatterer in said passage region.

16. (Previously Presented) Particle beam irradiation equipment according to Claim 15, further comprising a first table moving device for moving said first table in the direction perpendicular to the direction of travel of said charged particle beam, a second table moving device for moving said second table in the direction perpendicular to the direction of travel of said charged particle beam, and a table control device for controlling the table moving device to move a selected one of said first and second tables, thereby controlling movement of the selected table.

17. (Currently amended) Particle beam irradiation equipment comprising charged particle beam generation equipment and a charged particle beam irradiation nozzle for irradiating a charged particle beam extracted from said charged particle beam generation equipment to an irradiation target,

wherein said charged particle beam irradiation nozzle comprises:

a first scatterer device including a first scatterer through which said charged particle beam passes;

a second scatterer device including a plurality of second scatterers to be positioned in a passage region of ~~said~~ a Gaussian distributed charged particle beam resulting from passage through ~~after having passed~~ said first scatterer, said second scatterer device being movably

disposed in the direction of travel of said charged particle beam; and

a collimator for shaping said charged particle beam,

said plurality of second scatterers of the second scatterer device each being configured to have higher scatter strength in the central side than in the radially outer peripheral side to provide a beam irradiation of a double scattering method in combination with said first scatterer of the first scatterer device,

said plurality of second scatterers comprising a second scatterer for larger irradiation field size caused to position in said passage region of the charged particle beam at a first position included in plural different positions in the direction of travel of said charged particle beam and used when said collimator is adapted for a larger second irradiation field than a first irradiation field, and another second scatterer for smaller irradiation field size caused to position in said passage region at a second position downstream of said first position included in said plural different positions and used when said collimator is adapted for said first irradiation field,

said another second scatterer for smaller irradiation field size caused to position in said passage region at said second position having a thickness different from that of said second scatterer for larger irradiation field size caused to position in said passage region at said first position so as to provide smaller scattering strength of said charged particle beam in a direction perpendicular to the direction of travel of said charged particle beam than said second scatterer for larger irradiation field size caused to position in said passage region at said first position.

18. (Previously Presented) Particle beam irradiation equipment according to Claim 17, further comprising a second scatterer moving device for moving said second scatterer device in the direction of travel of said charged particle beam, and a second scatterer control device for controlling said second scatterer moving device, thereby controlling an amount by which said second scatterer device is to be moved.

19. (Previously Presented) Particle beam irradiation equipment according to any of Claim 1, 26, 7 and 17, wherein said first scatterer device is movable in the direction of travel of

said charged particle beam.

20. (Previously Presented) Particle beam irradiation equipment according to Claim 19, further comprising a first scatterer moving device for moving said first scatterer device in the direction of travel of said charged particle beam, and a first scatterer control device for controlling said first scatterer moving device, thereby controlling an amount by which said first scatterer device is to be moved.

21. (Previously Presented) Particle beam irradiation equipment according to Claim 17, wherein said second scatterer device comprises a table for positioning said second scatterer in said passage region, and a table moving device for moving said table in the direction perpendicular to the direction of travel of said charged particle beam.

22. (Previously Presented) Particle beam irradiation equipment according to Claim 21, further comprising a table control device for controlling said table moving device, thereby controlling movement of said table.

23. (Currently amended) A particle beam irradiation method using a charged particle beam irradiation nozzle comprising a first scatterer through which a charged particle beam passes, a plurality of second scatterers through which ~~said~~ a Gaussian distributed charged particle beam passes after having passed said first scatterer, said plurality of second scatterers comprising a second scatterer for larger irradiation field size caused to position in a passage region of said charged particle beam at one position included in plural different positions in the direction of travel of said-charged particle beam, and another second scatterer for smaller irradiation ~~filed~~ field size caused to position in said passage region at another position downstream of said one position included in said plural different positions, and a collimator for shaping said charged particle beam, said plurality of second scatterers each being configured to have higher scatter strength in the central side than in the radially outer peripheral side to provide a beam irradiation

of a double scattering method in combination with said first scatterer of the first scatterer device, said another second scatterer for smaller irradiation ~~filed~~field size caused to position in said passage region at said another position having a thickness different from that of said second scatterer for larger irradiation field size caused to position in said passage region at said one position so as to provide smaller scattering strength of said Gaussian distributed charged particle beam in a direction perpendicular to the direction of travel of said Gaussian distributed charged particle beam than said second scatterer for larger irradiation field size caused to position in said passage region at said one position~~;~~, comprising the steps of:

placing said second scatterer for larger irradiation field size in said passage region of said Gaussian distributed charged particle beam at said one position when said collimator is adapted for a larger second irradiation field than a first irradiation field, and irradiating said charged particle beam after having passed said first scatterer and said second scatterer positioned at said one position; and

placing said another second scatterer for smaller irradiation field size in said passage region of said Gaussian distributed charged particle beam at said another position when said collimator is adapted for said first irradiation field, and irradiating said charged particle beam after having passed said first scatterer and said another second scatterer positioned at said another position.

24. (Previously Presented) A particle beam irradiation method according to Claim 23, wherein said first scatterer is moved in the direction of travel of said charged particle beam.

25. (Previously Presented) A particle beam irradiation method according to Claim 23, wherein said second scatterer is placed at said selected position by moving said second scatterer in the direction of travel of said charged particle beam.

26. (Currently amended) Particle beam irradiation equipment comprising charged particle beam generation equipment and a charged particle beam irradiation nozzle for irradiating

a charged particle beam extracted from said charged particle beam generation equipment to an irradiation target,

wherein said charged particle beam irradiation nozzle comprises a first scatterer device including a first scatterer through which said charged particle beam passes, an upstream second scatterer device including a second scatterer to be positioned in a passage region of ~~said~~ a Gaussian distributed charged particle beam at a first position downstream of said first scatterer device in the direction of travel of said charged particle beam, a downstream second scatterer device including another second scatterer to be positioned in said passage region at a second position downstream of said first position in the direction of travel of said Gaussian distributed charged particle beam; and a collimator for shaping said charged particle beam; and

said second scatterer of each of said upstream and downstream second scatterer device being configured to have higher scatter strength in the central side than in the radially outer peripheral side to provide a beam irradiation of a double scattering method in combination with said first scatterer of the first scatterer device,

said second scatterer of said upstream second scatterer device being used as one for larger irradiation field size when said collimator is adapted for a larger second irradiation field than a first irradiation field, and said second scatterer of said downstream second scatterer device being used as one for smaller irradiation field size when said collimator is adapted for said first irradiation field,

said second scatterer of said downstream second scatterer device for smaller irradiation field size having a thickness different from that of said second scatterer of said upstream second scatterer device for larger irradiation field size so as to provide smaller scattering strength of said charged particle beam in a direction perpendicular to the direction of travel of said charged particle beam than said second scatterer of said upstream second scatterer device for larger irradiation field size.

27. (Currently amended) A method of adjusting a charged particle beam irradiation nozzle comprising a first scatterer through which a charged particle beam passes, a plurality of

second scatterers through which ~~said~~ a Gaussian distributed charged particle beam passes after having passed said first scatterer, said plurality of second scatterers comprising a second scatterer for larger irradiation field size caused to position in a passage region of said charged particle beam at one position included in plural different positions in the direction of travel of said charged particle beam, and another second scatterer for smaller irradiation field size caused to position in said passage region at another position downstream of said one position included in said plural different positions, and a collimator for shaping said charged particle beam,

said plurality of second scatterers each being configured to have higher scatter strength in the central side than in the radially outer peripheral side to provide a beam irradiation of a double scattering method in combination with said first scatterer of the first scatterer device,

said another second scatterer for smaller irradiation field size caused to position in said passage region at said another position having a thickness different from that of said second scatterer for larger irradiation field size caused to position in said passage region at said one position so as to provide smaller scattering strength of said charged particle beam in a direction perpendicular to the direction of travel of said charged particle beam than said second scatterer for larger irradiation field size caused to position in said passage region at said one position; comprising the steps of:

placing said second scatterer for larger irradiation field size in said passage region at said one position when said collimator is adapted for a larger second irradiation field than a first irradiation field; and

placing said another second scatterer for smaller irradiation field size in said passage region at said another position when said collimator is adapted for said first irradiation field.

28. (Currently amended) A method of adjusting a charged particle beam irradiation nozzle comprising a first scatterer through which a charged particle beam passes, a plurality of second scatterers through which ~~said~~ a Gaussian distributed charged particle beam passes after having passed said first scatterer, said plurality of second scatterers comprising a second scatterer for larger irradiation field size caused to position in a passage region of said charged particle

beam at one position included in plural different positions in the direction of travel of said charged particle beam, and another second scatterer for smaller irradiation field size caused to position in said passage region at another position downstream of said one position included in said plural different positions, and a collimator for shaping said charged particle beam, said plurality of second scatterers each being configured to have higher scatter strength in the central side than in the radially outer peripheral side to provide a beam irradiation of a double scattering method in combination with said first scatterer of the first scatterer device, said another second scatterer for smaller irradiation field size caused to position in said passage region at said another position having a thickness different from that of said second scatterer for larger irradiation field size caused to position in said passage region at said one position so as to provide smaller scattering strength of said charged particle beam in a direction perpendicular to the direction of travel of said charged particle beam than said second scatterer for larger irradiation field size caused to position in said passage region at said one position~~;~~, comprising the steps of:

selecting one of said second scatterer for larger irradiation field size and said another second scatterer for smaller irradiation field size depending on the size of the irradiation field size for which said collimator is adapted, and placing the selected second scatterer in said passage region at a selected one of said plural different positions in the direction of travel of said charged particle beam.

29. (Previously Presented) A method of adjusting a charged particle beam irradiation nozzle according to Claim 28, wherein said placing of the selected second scatterer at said selected position is carried out by placing in said passage region the second scatterer included in one of an upstream second scatterer device including said second scatterer for larger irradiation field size to be positioned at said one position downstream of said first scatterer in the direction of travel of said charged particle beam, and a downstream second scatterer device including said another second scatterer for smaller irradiation field size to be positioned in said another position downstream of said upstream second scatterer device.

30. (Previously Presented) A method of adjusting a charged particle beam irradiation nozzle according to Claim 28, wherein said placing of the selected second scatterer at said selected position is carried out by moving said second scatterers in the direction of travel of said charged particle beam.